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***Renovation of the General
Education Institution and
New Construction of the
Science Activity Center,
Referring to the Principles
of Contemporary Education
and "Waste" Architecture
Methods***

Abstract

The study focuses on waste pollution in Latvia, resulting from limited waste sorting capabilities and a lack of public education and awareness. The research aims to examine the role of waste architecture in promoting waste reduction and societal responsibility, particularly among primary and high school children. By integrating sustainable design principles and waste reduction strategies, the study aims to increase environmental responsibility in Latvian society and contribute to reducing waste pollution. The author's practical project explores the concept of futuristic educational institutions with science and recycling, emphasizing the fusion of knowledge, competence, and aesthetics in creating environmentally friendly surroundings. The project includes a science center, workshops for material processing, a botanical garden, laboratories, and an intensive green roof, all designed to enhance knowledge acquisition in an appealing and intelligent manner. During the analysis, the author tries to find answers to the following research questions:

1. Does architecture influence environmentally responsible waste usage in architectural design and increase environmental responsibility in the society of Latvia?
2. Does waste architecture have the potential to be practical, economical, and psychologically applicable in terms of educational institutions?
3. How is it possible to implement waste architecture in an educational building environment in an unobtrusive, economical, and architectonic way? Is it necessary?

Answers to the questions are sought using the analysis of various case studies as well as the focus group methodology, which envisages the expansion of knowledge by conducting surveys and performing a creative task together with a group of nine students studying in a high school institution. *The majority of society, including*

students, appears to recognize the significance and accountability of architecture, according to a wide range of responses. Additionally, it is critical to mention that "waste" architecture has initiated its "conquest march," and the upcoming generation of Latvian citizens is not only knowledgeable about the techniques but also prepared to implement them practically.

Keywords

waste sorting capabilities, public education, educational program "Skola 2030", sustainable design principles, principles of circular economy, New European Bauhaus.

Introduction

Waste pollution in Latvia is a significant problem caused by limited waste sorting capabilities and a lack of public education and awareness. This research focuses on the potential of waste architecture to promote waste reduction and societal responsibility, particularly among school children. The integration of sustainable design principles and waste reduction strategies in architecture aims to increase environmental responsibility and reduce waste pollution. The research investigates the impact of architecture on waste reduction, the practicality of waste architecture in educational institutions, and the implementation of waste architecture in a cost-effective manner. The ultimate goal is to enhance environmental awareness and responsibility among younger generations in Latvia. The research involves a literature review, exploration of global educational principles, analysis of Latvian educational initiatives, case studies, and a focus group discussion. The hypothesis posits that sustainable design principles and waste reduction strategies in architecture will lead to increased environmentally responsible waste usage and greater environmental awareness among younger generations in Latvia.

The master's thesis comprises multiple chapters, one of which provides a comprehensive examination of current educational principles in Europe and the obstacles that educational institutions encounter. In the second chapter, an overview of the circular economy is presented, whereas the New European Bauhaus is expounded upon in the third chapter. A case study in Madona City and an examination of educational institutions in Europe and Latvia are among the three studies comprised in the fourth chapter. Additionally, the outcomes of the focus group discussion and assignments performed as a component of the research endeavor are detailed in the concluding chapter.

Literature review

In Europe, modern education principles are aimed at modernizing educational institutions, promoting inclusion and equal education for all, as well as eliminating gender inequality (European Commission, 2003). Architects play a vital role in creating safe and stimulating learning environments that span both physical and digital spaces. The goal is to provide high-quality education that promotes holistic development and includes innovative and sustainable approaches to learning. This includes incorporating digital technologies and creating flexible learning environments that encourage self-directed learning. Initiatives like the "Skola 2030" program highlight the importance of immersive and adaptable learning environments (Skola 2030.lv, 2019). In addition, there is a focus on inclusive education to ensure equal opportunities for all students and address barriers faced by marginalized groups. Lastly, integrating environmental awareness and sustainability into academic curricula and practices through green education projects is crucial. Overall, education needs to transform to meet changing societal norms, technological advancements, and environmental challenges, equipping students with the necessary skills and knowledge to thrive in a global landscape (European Commission, 2002).

The current linear economic model has led to significant environmental degradation and the generation of billions of tons of waste in the European Union. Implementing a circular economy framework, such as the Butterfly Model and the Cradle to Cradle approach, is necessary to address these issues. This involves sharing, reusing, repairing, refurbishing, and recycling products and materials to reduce waste generation and resource exploitation, while extending their lifecycles. Despite challenges, the urgency of the situation calls for immediate action towards a more sustainable and accountable economy (European Union, 2022).

The New European Bauhaus initiative is an integral part of the European Green Deal,

aiming to incorporate sustainable practices into the daily lives of Europeans through inclusive co-creation, ecological and digital transformations, and innovative design. By considering economic, sociocultural, and environmental factors, it seeks to establish a more sustainable society. Education and interdisciplinary learning, exemplified by the Latvian case of pluriversity, play a crucial role in driving the transition to a sustainable future. Overall, the New European Bauhaus initiative is essential for societal development and shaping the trajectory of Europe's future (The New European Bauhaus, n.d.).

The author believed that the examination of the cross-example method in case study research would enable the comparison of circumstances beyond Latvia and into other European countries, as well as provide insights into the planned and implemented architectural styles in those regions. After analyzing a total of seven instances, it is abundantly clear that all instances exhibit the same contemporary social characteristics that are reflected in architecture: the provision of diverse groups of spaces, the integration of nature into the urban environment, and the creation of an inviting, creative atmosphere in general. When conducting a case study analysis for an additional set of educational examples in Latvia, a comparable methodology was applied. It was gratifying to discover that the architectural examples exhibit the same level of brilliance as their foreign counterparts. Alongside this, an examination of the city of Madona was conducted in relation to Part B of the master's project. In addition to these activities, data pertaining to Madona State High School were gathered and an analysis of the city's general structure was conducted as part of Part B of the master's project. However, for the purpose of collecting personal insight and experience, the author exclusively utilized focus groups, whose constructive dialogues and imaginative assignments bolstered the author's conviction that the younger generation is not only mindful of the potential of "waste" architecture but also possesses knowledge regarding the

implementation of eco-friendly practices. Therefore, the author must conclude that the results were positively surprising and give hope for growing as a society in a shorter period of time.

Conclusion

In conclusion, the integration of waste architecture in educational institutions holds significant potential for practical, economic, and psychological implications. Adopting sustainable design principles, promoting a circular economy, and considering the aesthetics of the building can create functional and visually appealing spaces while reducing environmental impact. The profound understanding of environmental responsibility among youth in Latvia, as observed through the focus group analysis, indicates that this approach can effectively raise awareness and encourage responsible behavior. By incorporating refuse architecture, we can contribute to the achievement of the Latvian and European environmental targets and foster a more sustainable built environment.

Within the framework of the study, the author puts forth the subsequent suggestions:

1. Architects must consider various factors when designing educational spaces, such as open and interconnected areas as well as separate rooms for specific lessons and support services. A feasibility study should be conducted to understand the specific needs of each institution.
2. Educational institutions should be integrated into the wider community and foster connections with local groups and organizations. This inclusive approach promotes collaborative partnerships and expands the concept of education beyond the institution itself.
3. Environmental sustainability should be a priority in education, construction, and design. A holistic approach that considers environmental, social, and economic

sustainability is necessary for a sustainable future.

4. Education and awareness initiatives are important for promoting responsible consumption and the principles of the circular economy. Teaching individuals about recycling, repairing, and extending product lifespans can help drive sustainable behaviors and reduce waste. This knowledge should be imparted to the younger generation to create lasting change in society.

Additionally, the author emphasizes that while our nation and society perform numerous accomplishments correctly and superiorly to those of our neighboring countries, according to research and theory, this is a team sport. The realization of the potential of research and civilizations is dependent upon the active participation of nations and individuals worldwide in this endeavor to transform the current structure. It is a global aspiration, not an individual's responsibility; the young generation exemplifies this in the best manner possible by recycling, reusing water bottles, and requesting that Christmas gift wrapping paper be replaced with textil. By no means making it a joke, but the quote of John C. Maxwell says it precisely: "Teamwork makes a dream work." Especially when it comes to the global level of interest.

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